

What is Claimed Is:

1. A method of manufacturing a magnetic film comprising steps of:
forming a magnetic layer on a substrate; defining a first area and a second area of the magnetic layer;
treating the first area of the magnetic layer with an ion beam to form a first area having a first direction; and
treating the second area of the magnetic layer with an ion beam in a magnetic field to form a second easy axis having a second direction.
2. The method of manufacturing a magnetic film of claim 1 wherein the magnetic layer comprises a rare earth material selected at least one of Pt, Pd, Au, and Tb.
3. The method of manufacturing a magnetic film of claim 1 wherein the angle difference between the direction of the first easy axis and that of the second easy axis is from 60° to 90°.
4. The method of manufacturing a magnetic film of claim 1 wherein the magnetic layer comprises a transition metal selected at least one of Co, Ni, and Fe.
5. The method of manufacturing a magnetic film of claim 1 wherein the beam comprises an inert gas selected at least one of He, Ne, Ar, Xe, and Kr.

6. A method of manufacturing a magnetic film comprising steps of:
forming a magnetic layer on a substrate; and
applying an ion beam into a selected area of the magnetic layer to form a first easy axis having a first direction.

7. The method of manufacturing a magnetic film of claim 6 further comprising steps of:

applying a magnetic field to the magnetic film and applying an ion beam into another selected area of the magnetic layer to form a second easy axis having a second direction.

8. The method of manufacturing a magnetic film of claim 6 wherein the magnetic layer comprises a transition metal selected at least one of Co, Ni, and Fe.

9. The method of manufacturing a magnetic film of claim 6 wherein the beam comprises an inert gas selected at least one of He, Ne, Ar, Xe, and Kr.

10. A method manufacturing a magnetic film comprising steps of:
forming a magnetic layer on a substrate; and
treating the magnetic layer with an ion beam to form an easy axis having a direction.

11. The method of manufacturing a magnetic film of claim 10 wherein the magnetic layer comprises a transition metal selected at least one of Co, Ni, and Fe.

12. A method manufacturing a magnetic film comprising steps of:
forming a magnetic layer on a substrate;
applying a magnetic field to the magnetic film; treating the magnetic layer with an ion beam to form an easy axis having a direction.

13. The method of manufacturing a magnetic film of claim 12 wherein the magnetic layer comprises a transition metal selected at least one of Co, Ni, and Fe.

14. A method manufacturing a magnetic film comprising steps of:
forming a magnetic layer on a substrate;
covering the magnetic layer with a first mask opening a first area;
treating the first area with an ion beam to form an first easy axis;
rotating the magnetic layer in some degree;
covering the magnetic layer with a second mask opening a second area; and
treating the second area with an ion beam to form an second easy axis.

15. A method manufacturing a magnetic film comprising steps of:
forming a magnetic layer on a substrate;
covering the magnetic layer with a first mask opening a first area;

treating the first area with an ion beam in a magnetic field to form an first easy axis;
rotating the magnetic layer in some degree;
covering the magnetic layer with a second mask opening a second area; and
treating the second area with an ion beam in a magnetic field to form an second easy
axis.